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Amperometric Detection Under Batch-Injection Analysis Conditions of Caffeine on an Electrode Modified by Mixed-Valence Iridium and Ruthenium Oxides

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Abstract

© 2016 Springer Science+Business Media New York Mixed-valence Ir–Ru oxides (IrOx—RuOx) electrodeposited on a glassy-carbon electrode surface were found to exhibit catalytic activity for caffeine oxidation. An amperometric method for caffeine detection at this modified electrode under batch-injection analysis conditions was developed. The analytical signal was linearly dependent on the caffeine concentration in the range 5 × 10−8 – 5 × 10−3 M. The developed method was tested for caffeine determination in tablets, solutions for injection of caffeine—sodium benzoate, and coffetamin tablets.

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Keywords

batch-injection analysis, caffeine electrochemical oxidation, chemically modified electrodes, mixed-valence Ir–Ru oxides